**Mode 2**

Mode 2 of the RGB color sensor is color detecting mode. This mode is used to determine real world colors using their Red, Green and Blue values. Before coming to this mode, mode 1 (calibration mode) must be done. Using this accurately calibrated device, surface colors can be detected and interpret them in two forms. One form is outputting color using RGB LED. The other form is displaying RGB values in the display.

The procedure of working in this mode is simple. First the color detecting sensor part which has red, green, and blue LED bulbs and LDR sensor must be pointed towards the surface. Then the red LED blinks and emits color rays towards the surface. These rays reflect from the surface and flow to the LDR sensor. The LDR sensor is responsible for reading the intensity of the color ray. The value of this intensity stores in the program and later this value is going to use light up the output RGB LED. The same process will be done for the green and blue colors as well.

After taking all values, they are mapped to the representative values using the mapping algorithm. These final values then display on the LCD display and indicate on RGB LED.

**Enclosure**

The enclosure is designed in user friendly structure. The shape of it is planned in the way which is helpful to perform the activities of the device and hold it comfortably on hand. All the components which are placed inside it are properly packed and located to reduce the waste of free space. Except the keypad, all other components can be attached to the bottom layer of it. This makes easy to unpack the device. The final structure is 135 mm long and 86 mm wide. The thickness of full structure is 30 mm. The surface of it has 1.5 mm thickness and the inner walls and ribs have 1 mm thickness.

The most important part of the device is the color detecting sensor part. It is directly reasonable for the accuracy of the device. Hence this part is designed with a 10 mm depth circular covering. The LDR is placed at the center of the circle and the three LEDs are placed in equal distances from the center. Each of this component has its own circular covering which is helpful to point the color rays directly to the surface and detect the rays which is reflect from the surface. When the user places the surface on this outer circular wall, the process of the device can be done without the effect of light conditions of the environment. The output RGB LED is placed away from the sensor part since it can be caused to decrease the accuracy of the process.

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